L8 ANSWER 1 OF 3 MEDLINE
TI ScoC regulates peptide transport and sporulation initiation in Bacillus **subtilis**.
AU Koide A; Perego M; Hoch J A
SO JOURNAL OF BACTERIOLOGY, (1999 Jul) 181 (13) 4114-7.
Journal code: 2985120R. ISSN: 0021-9193.
PY 1999

L8 ANSWER 2 OF 3 MEDLINE
TI Synthesis and characterization of a 29-amino acid residue DNA-**binding peptide** derived from alpha/beta-type small, acid-soluble **spore** proteins (SASP) of bacteria.
AU Rao H; Mohr S C; Fairhead H; Setlow P
SO FEBS LETTERS, (1992 Jun 29) 305 (2) 115-20.
Journal code: 0155157. ISSN: 0014-5793.
PY 1992

L8 ANSWER 3 OF 3 MEDLINE
TI The oligopeptide transport system of Bacillus **subtilis** plays a role in the initiation of sporulation.
AU Perego M; Higgins C F; Pearce S R; Gallagher M P; Hoch J A
SO MOLECULAR MICROBIOLOGY, (1991 Jan) 5 (1) 173-85.
Journal code: 8712028. ISSN: 0950-382X.
PY 1991

=> d l8 1-3 ab

L8 ANSWER 1 OF 3 MEDLINE
AB Oligopeptides are transported into Bacillus **subtilis** by two ABC transport systems, App and Opp. Transcription of the operon encoding the Opp system was found to occur during exponential growth, whereas the app operon was induced at the onset of stationary phase. Transcription of both operons was completely curtailed by overproduction of the ScoC regulator from a multicopy plasmid and was enhanced in strains with the scoC locus deleted. ScoC, a member of the MarR family of transcription regulators, is known from previous studies to be a negative regulator of sporulation and of protease production that acts by **binding** directly to the promoters of the genes it regulates. Since **peptide** transport is essential for inactivation of the negative regulation of sporulation by Rap phosphatases, the control of ScoC transcription repression activity plays a crucial role in the initiation of sporulation.

L8 ANSWER 2 OF 3 MEDLINE
AB A 29-amino acid residue peptide (SASP-peptide) derived from the sequence of the putative DNA-contacting portion at the carboxyl terminus of an alpha/beta-type small, acid-soluble **spore** protein (SASP) of Bacillus **subtilis** has been synthesized by automated solid-phase methods and tested for its ability to interact with DNA. Circular dichroism (CD) spectroscopy reveals an interaction between this SASP-peptide and DNA, both by an increase in alpha-helix content of the peptide (which alone has a mostly random conformation) and by enhancement of the 275-nm CD band of the DNA. In contrast to results with intact alpha/beta-type SASP, however, the peptide does not induce a B----A conformational transition in the DNA. The SASP-peptide also binds to poly(dG).poly(dC) and protects this polynucleotide against DNase I digestion and UV light-induced cytosine dimer formation, parallel to findings made previously with native alpha/beta-type SASP. The results confirm the hypothesis that the carboxyl-terminal region of the alpha/beta-type SASP directly contacts DNA and possesses some, but not all, of the functional characteristics of the intact molecule.

L8 ANSWER 3 OF 3 MEDLINE

AB Bacillus **subtilis** spo0K mutants are blocked at the first step in sporulation. The spo0K strain was found to contain two mutations: one was linked to the trpS locus, and the other was elsewhere on the chromosome. The mutation linked to trpS was responsible for the sporulation defect (spo-). The unlinked mutation enhanced this sporulation deficiency but had no phenotype on its own. The spo- mutation was located in an operon of five genes highly homologous to the oligopeptide transport (Opp) system of Gram-negative species. Studies with toxic peptide analogues showed that this operon does indeed encode a peptide-transport system. However, unlike the Opp system of Salmonella typhimurium, one of the two ATP-**binding** proteins, OppF, was not required for **peptide** transport or for sporulation. The OppA peptide-binding protein, which is periplasmically located in Gram-negative species, has a signal sequence characteristic of lipoproteins with an amino-terminal lipo-amino acid anchor. Cellular location studies revealed that OppA was associated with the cell during exponential growth, but was released into the medium in stationary phase. A major role of the Opp system in Gram-negative bacteria is the recycling of cell-wall peptides as they are released from the growing peptidoglycan. We postulate that the accumulation of such peptides may play a signalling role in the initiation of sporulation, and that the sporulation defect in opp mutants results from an inability to transport these peptides.

I Construction and expression of a bifunctional single-chain antibody against Bacillus **cereus** p6ores.

AU Koo K; Foegeding P M; Swaisgood H E

SO APPLIED AND ENVIRONMENTAL MICROBIOLOGY, (1998 Jul) 64 (7) 2490-6. Journal code: 7605801. ISSN: 0099-2240.

PY 1998

AB The variable-region genes of monoclonal antibody against Bacillus **cereus** spores were cloned from mouse hybridoma cells by reverse transcription-PCR. The heavy- and light-chain variable-region genes were connected by a 45-base linker DNA to allow folding of the fusion protein into a functional tertiary structure. For detection of protein expression, a 10-amino-acid strep **tag** (biotin-like **peptide**) was attached to the C terminus of recombinant antibody as the reporter peptide. The single-chain antibody construct was inserted into the expression vector and expressed in Escherichia coli under the control of the T7 RNA polymerase-T7 promoter expression system. The expressed single-chain antibody was detected on Western blots by using a streptavidin-conjugated enzyme system. This small recombinant antibody fragment (ca. 28,000 Da by calculation) had B. **cereus** spore binding ability and antigen specificity similar to those of its parent native monoclonal antibody.